Mr. Michael L. Griffin
Manager of Environmental and Regulatory Affairs
Crow Butte Resources, Inc.
86 Crow Butte Road
Post Office Box 169
Crawford, NE 69339-0169

SUBJECT: STAFF REVIEW OF SM6-18 SIXTY DAY EXCURSION REPORT, LICENSE CONDITION 12.2, LICENSE NO. SUA-1534

Dear Mr. Griffin:

The NRC staff has completed its review of the SM6-18 Sixty Day Excursion Report required by License Condition12.2 and submitted by Crow Butte Resources, Inc. on May 8, 2000. Since, it is not clear if sampling at Well SM6-18 is detecting a real excursion, the staff has concluded that at this time it is not appropriate to require the cessation of lixiviant injection in Mine Unit 6.

Crow Butte Resources, Inc. reported that on March 6, 2000, shallow monitor well SM6-18 exceeded it's single parameter control limit for chloride. A second ground-water sample was collected within 48 hours. Analysis of this sample confirmed that the monitor well was in exceedance of the single parameter control limit for chloride. Therefore, monitor well SM6-18 was placed on excursion status and the NRC appropriately notified.

As required by License Condition 11.2, the sampling frequency for well SM6-18 was increased from biweekly to weekly. Chloride concentrations have continued to exceed the single parameter upper control limit. From March 6 through May 1, chloride concentrations have ranged from 20 to 22 mg/L which is just slightly (1-2 ppm) above the single upper control limit concentration of 19 mg/L. All other excursion parameters (sodium, sulfate, alkalinity, and conductivity) have shown no changes in their concentrations and have remained at levels that are well below their respective upper control limits.

Prior to the excursion, water levels in Well SM6-18 rose by 0.68 feet from December 27, 1999 to March 6, 2000. From March 6th through May 1st water levels decreased by 1.14 feet, then quickly recovered remaining stable at the March 6th value and finally rising by an additional 0.45 feet on May 1st. Mechanical integrity tests were performed to investigate if failed well completions could have acted as vertical pathways allowing mining solutions to move from the production aquifer into the overlying aquifer monitored by Well SM6-18. These test were performed on the three injection wells nearest to Well SM6-18. All three wells successfully passed the test acceptance criteria. Injection in these three wells ceased in October, 1999. At

this time, the nearest active injection well is over 200 feet away from Well SM6-18.

Crow Butte Resources, Inc. believes that the chloride exceedance is due to natural fluctuations in chloride concentrations in the overlying aquifer and is not due to the movement of mining solutions from the mine zone into the overlying aquifer. License Condition12.2 requires that injection of lixiviant into a well field on excursion be terminated until such time that aquifer clean up is complete. However, because Crow Butte Resources, Inc. believes that the excursion is caused by natural variations in background concentrations, aquifer remediation is not planned, and termination of lixiviant injection is not proposed. Instead, in compliance with License Conditions 11.2 and 12.2, Crow Butte Resources, Inc. proposes to submit quarterly reports to NRC concerning the status of SM6-18 and will continue to sample Well SM6-18 on a weekly basis until three consecutive weekly samples are below the upper control limit. Crow Butte Resources, Inc. further states that they may request a license amendment in the future to propose new upper control limits for Mine Unit 6.

The staff has concluded that from the data presented it cannot be determined if the water quality samples obtained from Well SM6-18 are detecting an excursion or if they are recording natural variations in background. For example, the water level rise and chloride increase might support an excursion interpretation or it might support a water level rise, with attendant minor water quality changes. The relatively minor increase in chloride concentrations along with the lack of change in all the other upper control limit parameters could support an interpretation of natural background variations or it might be detecting the most mobile constituent of an excursion plume from a more distant source.

Since, it is not clear if sampling at Well SM6-18 is detecting a real excursion, the staff has decided that at this time it is not appropriate to require the cessation of lixiviant injection in Mine Unit 6. The staff agrees to the continued submittal of quarterly reports to NRC concerning the status of SM6-18 and the continued sampling of Well SM6-18 on a weekly basis. If Well SM6-18 is still on excursion status when the next quarterly report is due (90 days from the beginning of May 8, 2000), the quarterly report should either contain a demonstration of why Well SM6-18 is or is not detecting an excursion or contain a description of plans and a schedule to make that determination.

If Well SM6-18 is detecting a real excursion, then actions will have to be taken to correct the excursion and restore the ground-water quality in the overlying aquifer. If sampling at Well SM6-18 is not detecting an excursion, then new upper control limits will have to be developed for Well SM6-18, so that false alarms can be eliminated and real excursions can be detected should they occur.

If you have any questions, please contact the NRC Project Manager, Mr. William Ford, at (301) 415-6630.

Sincerely,

Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety
and Safeguards

Docket No. 40-8934
License No. SUA-1534

cc: Stephen P. Collings, CBR, Denver
Dave Miesbach, Nebraska, UIC, DEQ
Dave Carlson, Nebraska, UIC, DEQ
Cheryl K. Rogers, Nebraska, RMP, PHA

If Well SM6-18 is detecting a real excursion, then actions will have to be taken to correct the excursion and restore the ground-water quality in the overlying aquifer. If sampling at Well SM6-18 is not detecting an excursion, then new upper control limits will have to be developed for Well SM6-18, so that false alarms can be eliminated and real excursions can be detected should they occur.

If you have any questions concerning this amendment, please contact the NRC Project Manager, Mr. William Ford, at (301) 415-6630.

Sincerely,

Philip Ting, Chief
Fuel Cycle Licensing Branch
Division of Fuel Cycle Safety
and Safeguards

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